

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
23 June 2005 (23.06.2005)

PCT

(10) International Publication Number
WO 2005/056628 A3

(51) International Patent Classification⁷: **B05D 1/36**,
3/12, 5/12

(21) International Application Number:
PCT/US2004/030566

(22) International Filing Date:
17 September 2004 (17.09.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/666,333 17 September 2003 (17.09.2003) US
60/607,335 3 September 2004 (03.09.2004) US

(71) Applicant (for all designated States except US): **THE REGENTS OF THE UNIVERSITY OF CALIFORNIA** [US/US]; 1111 Franklin Street, Twelfth Floor, Oakland, CA 94607-5200 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BAZAN, Guillermo, C.** [CA/US]; 1068 Cheltenham, Santa Barbara, CA 93106 (US). **LIU, Bin** [CN/US]; 6735 Abrego Road, Apt. 41, Goleta, CA 93117 (US).

(74) Agents: **MAHER, David, W.** et al; Bingham McCutchen LLP, Three Embarcadero Center, Suite 1800, San Francisco, CA 94111-4067 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
9 March 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHODS AND DEVICES COMPRISING SOLUBLE CONJUGATED POLYMERS

(57) Abstract: Methods, compositions and articles of manufacture involving soluble conjugated polymers are provided. The conjugated polymers have a sufficient density of polar substituents to render them soluble in a polar medium, for example water and/or methanol. The conjugated polymer may desirably comprise monomers which alter its conductivity properties. In some embodiments, the inventors have provided cationic conjugated polymers (CCPs) comprising both solubilizing groups and conductive groups, resulting in conductive conjugated polymers soluble in polar media. The different solubility properties of these polymers allow their deposition in solution in multilayer formats with other conjugated polymers. Also provided are articles of manufacture comprising multiple layers of conjugated polymers having differing solubility characteristics. Embodiments of the invention are described further herein.

WO 2005/056628 A3